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AUTHOR Redick, Sharon; And Others
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ABSTRACT

A study examined the impact of time allocation on the performance and satisfaction of special needs and nondisabled students enrolled in a vocational home economics community and home services program in one Ohio school district. During the study, researchers compared the performance and attitudes of disabled and nondisabled students enrolled in six community and home services classes taught by four different teachers in three schools. Three of the classes were 180 minutes in length (the current State mandate); in these control groups were 27 disabled and 17 nondisabled students. Three experimental groups of 34 special needs students were given classes of 135 minutes in length. Student achievement was measured by a paper-and-pencil cognitive test and by performance on five selected tasks. Satisfaction was measured by questionnaires administered to students and by interviews conducted with classroom teachers. Although no statistically significant differences existed between the two groups with respect to task performance, the nondisabled learners did score significantly higher on the paper-and-pencil test. Students in both groups were generally satisfied with time allocations in their classes; moreover, the teachers interviewed felt that student learning would remain about the same whether or not current time allocations remained the same or were decreased. (Appendixes to this report include a research model and description of the project pilot study, the survey and interview instruments, and responses to open-ended questions appearing on the survey instruments.) (MN)

Effects of Allocated Time Differences in Vocational Home Economics Community and Home Service Programs

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A research study, conducted by the Home Economics Education Department, The Ohio State University, in cooperation with the Division of Vocational Education, Ohio Department of Education; Cuyahoga East Vocational Educational Consortium, Mayfield City Schools; and Cleveland Public Schools.

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Sharon Redick
Project Director
Chairperson and Associate Professor
Home Economics Education
The Ohio State University
1787 Neil Avenue
Columbus, OH 43210
614-422-4487

Laura Pernice
Project Co-Director
Home Economics Supervisor
Division of Vocational Education
Ohio Department of Education
65 South Front Street
Columbus, OH 43215
614-466-3046

Regina Weade
Project Coordinator
Department of Human Development and Consumer Services
Cameron Building
University of Houston
Houston, TX 77004
713-749-2744

Charles M. Loyd
Project Assistant
Home Economics Education
The Ohio State University
1787 Neil Avenue
Columbus, OH 43210
614-422-4487

Casmira Discipio
Project Consultant
Directing Supervisor, Secondary Vocational Education
Cleveland Public Schools
1380 E. 6th Street
Cleveland, OH 44114
216-574-8000

FOREWORD

Time allocation for secondary vocational education programs is a major issue facing educators today. Driven by economics and political forces to address excellence in all areas of education, vocational educators are asked to justify the relatively large blocks of time devoted to vocational education.

This report reflects an effort to provide research based data on time allocation in vocational home economics community and home service programs. Further, it reflects a collaborative effort initiated by Casmira Discipio, Cleveland Public Schools and Laura Pernice, Ohio Department of Education. These two home economists are to be commended on their visionary views of research based programming in home economics.

The collaborative research model which was operationalized for this research is depicted in Appendix A. Without the flexibility, expertise, commitment and willingness to provide resources on the part of every agency and person involved, this project would not have become a reality.

Regina Weade, project coordinator deserves special thanks for providing the 'connection' between Cleveland and Columbus as well as keeping the project on target. We thank Ida Halasz, National Center for Research in Vocational Education(NCRVE),a project consultant who adapted the observation instruments and trained the data collectors. Marta Fisch, from NCRVE, assisted in computer programming and statisical analysis. The classroom teachers who cooperated in this study deserve special recognition as well as the evaluators who collected data. Steve Maiorca, Cleveland Public Schools, coordinated the data collection efforts and Candace Hazelwood coordinated efforts in the Mayfield, Cuyahoga Vocational Educational Consortium, program.

Charles M. Loyd, project assistant, developed the training film, collected data on-site, and provided the much needed support and assistance in the interpretation of data and the development of the report. Sincere appreciation is expressed for his expertise and willingness to see the project through.

The funds for this project were provided, in part, by the Division of Vocational Education, Ohio Department of Education. In kind resources were provided by Cleveland Public Schools, Mayfield City Schools, and The Ohio State University, Department of Home Economics Education.

Sharon S. Redick, Ph. D.
Project Director

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Executive Summary

PURPOSE:	The purpose of this study was to determine the impact of time allocation on student achievement, student and teacher satisfaction, and time on task of handicapped students enrolled in Community and Home Service Programs.
LOCATION:	Cleveland and Mayfield, Ohio
DESIGN:	Quasi-experimental design. Two control groups of handicapped students, three experimental groups of handicapped students, and one control group of non-handicapped students.
DEPENDENT VARIABLE:	Knowledge of content. Performance of selected tasks. Satisfaction of students and teachers. Time on task.
INDEPENDENT VARIABLE:	Time allocation-- Control: 180 min. Experimental: 135 min.
SAMPLE:	Junior and senior special needs students enrolled in Community and Home Service Programs. Junior and senior non-handicapped students enrolled in Community and Home Service Programs.
SAMPLE:	CONTROL GROUP: 27 special needs 17 non-handicapped EXPERIMENTAL GROUP: 34 special needs Groups were tested on the following to determine "match": Reading level: No significant difference (NSD) IQ: NSD

Stanford Diagnostic: NSD

Knowledge Pre-test: NSD (There was a signficant difference between the non-handicapped group and the combined control group and experimental group.

Math: Significant difference(SD) between one experimental group and one control group.

RESULTS:

Hypothesis: There will be no significant difference between groups on achievement test.

Experimental:	32.2%	
Control:	42.9%*	SD
Non-handicapped	51.6%*	SD

Hypothesis was not supported.

Hypothesis: There will be no signficant difference between groups on achievement test gain scores.

Experimental:	1.2%	
Control:	6.8%	
Non-handicapped:	12.7%*	SD

Hypothesis was supported for special needs groups.

Hypothesis: There will be no significant differences between groups on task performance.

Hypothesis was supported for special needs groups.

Hypothesis: There will be no significant difference in student satisfaction.

Hypothesis was supported for special needs groups.

RESULTS:

Hypothesis: There will be no significant difference in teacher satisfaction.

Hypothesis was not supported in that the majority of teachers preferred the shorter time frame.

Hypothesis: There will be no significant difference between groups on time on task.

Hypothesis was supported as there was no significant differeces between special needs groups on time on task/content, time on task/non-content and time off task.

Hypothesis: There will be no significant difference between handicapped learners and non-handicapped learners on achievement, task performance and time on task.

Hypothesis was not supported as the non-handicapped group scored significantly higher than handicapped experimental group on the posttest and significantly higher on gain scores than both handicapped groups. The non-handicapped group scored significantly higher on three of five task ratings. The non-handicapped group spent significantly less time on task/non-content and significantly more time off task.

	Combined Experimental Handicapped		Control Handicapped		Control Non-Handicapped	
Achievement: (%)						
Pre test	31.2		33.0		40.7*	
Post test	32.2		42.9**		51.6**	
Gain scores	1.2		6.8		12.7*	
Task performance: ($\bar{x}$)						
folding	4.09		4.14		4.52	
table	3.79		3.63		4.43*	
bed	3.28		3.76		3.75	
washing furniture	3.87		3.85		4.74*	
cleaning sink	3.82		3.54		4.75*	
Time on task:	%	Min	%	Min	%	Min
On Task/Content	66.66	89.99	68.93	124.07	66.07	118.92
On Task/non-content	20.80	28.08	19.39	34.90	7.3*	13.14
Off Task	12.84	17.3[illegible]	11.86	21.35	26.74*	48.13

*Significantly different than all other groups
**Significantly different than experimental group

Effects of Allocated Time Differences in Vocational Home Economics Community and Home Service Programs

INTRODUCTION

Time allocation is a matter of critical importance to vocational educators. The National Commission of Excellence on Education (National Assessment of Educational Progress, 1982) pinpointed time spent on subject as one of three variables most crucial to enhancing the quality of education. In the wake of this and other national and state commission reports, secondary school curricula and curriculum standards are being examined and revised. Of particular interest to many are the amounts of time allocated to various subject matter areas in secondary school programs.

Vocational education programs have traditionally been allotted large blocks of school time as compared to other subject areas. Whether by historical precedent or conventional wisdom, educators have operated on the belief that laboratory activities, "learning and doing", are time consuming activities. Little empirical evidence is currently available with which to increase the rationality of our time-related decisions within particular secondary vocational programs.

While very little research on time allocation has taken place in vocational education classrooms, numerous studies of time usage have been conducted in elementary schools and in secondary level academic subject areas. Findings reported in these studies indicate among other things, that the amount of time students are actively engaged in a learning activitiy is

positively related to achievement (Bloom, 1974 Borg, 1980; Frederick and Walberg, 1980). This finding isn't surprising. The idea that higher levels of achievement can result from increasing student time on task is appealing; it is perhaps overly simplistic. Results in other studies have suggested that increasing student engaged time does not produce equally higher levels of achievement for all students (Stallings, 1980; Evertson, 1980; Soar, 1978). Evertson (1980) reported a significant variation in student engaged time among groups of students of different achievement levels. Clearly the way teachers structure and manage learning activities, that is, how time is used, coupled with planning for differing ability levels is important; the total amount of time available within which to accomplish instructional goals equally important.

Findings in these studies provide a partial framework for the formulation of research questions and hypotheses. Important differences do exist, however, in the subject matter content and the structure of learnig activities in vocational education classrooms as compared to the types of academic classes observed in most of the time on task studies. Halasz and Behm (1983) acknowledged this fact as a basis for developing an observational device designed specifically for use in vocational education classroom settings. Their instrument provides an important methodological advance in enabling researchers to account for time use within the context of vocational skill areas. In addition, their use of the observation device in a purposively selected sample of secondary vocational program areas indicated

some program areas foster student time on task more adequately than others. Home economics programs were not included in their study.

Background

Time allocation decisions for vocational ome economics programs became a critical concern in Ohio in autumn, 1982. A large urban school district requested a reduction in mandated time for the Community and Home Service Job training program for handicapped students. In this district, more students had been vocationally assessed as needing and deserving the Community and Home Service program than could be accommodated within the existing time frame. The Ohio Department of Education, Division of Vocational Education, granted permission to decrease the amount of time in selected sections of the program on an experimental basis. That is, plans were made to study selected effects of different time allocations in order to assess the advisability of such actions in the future.

Pilot Study

A pilot study was conducted during the 1982-83 academic year at East High School in Cleveland, Ohio. The purpose of the study was to determine the impact of time allocation on achievement as measured by paper/pencil tests, performance of tasks, and time on task of handicapped students enrolled in Community and Home Service Programs. Thus, a quasi-experimental design was implemented including one control group (N=13) and two experimental groups (N=25). The control group met for the customary three clock hours while the time was reduced by 25%, to two hours and 15 minutes, for the experimental groups.

The groups were tested on the following variables to determine "match": years in the home economics program; reading level; Stanford Diagnostic Test, total score, Math Comprehension, Math Cognition, Math Application; Knowledge of Content, Achievement Pre-test I(health aid) and Achievement Pre-test II(institutional cleaning). The use of the t-test indicated there were no significant differences between groups with the exception of two variables. The control group scored significantly higher on Achievement Pre-Test II and had more years of experience in home economics.

Two teachers were involved in the project, one teacher taught the control group and the other taught the two experimental groups. With the assistance of the city home economics supervisor and the chairperson of the high school home economics program, agreement was reached on the broad curricular areas to be taught. Each teacher then determined how much time to spend on specific content and the amount of time spent on theory and on practice of tasks.

Students were measured on cognitive achievement by use of the same instrument that had been used as a pre-test. In addition, observers scored each student on five selected tasks; bed-making, folding, temperature taking, pulse taking, and respiratory measurement. Reading levels wre measured at the end of the year. Observers recorded time on task using classroom observation devices developed by Halasz and Behm (1983).

Analysis of the data indicated that there was a significant difference between experimental and control groups on Achievement

Posttest I with the control group scoring higher. There were no significant difference between groups on Achievement Posttest II. There were no significant differences between groups on the performance tasks that were measured, and there was no significant difference between groups on reading level measured at the end of the year. See Appendix A.

Analysis of the time on task data indicated that when comparing the two groups, the experimental groups spent greater proportions of time on basic skills, on set-up and clean-up and on break. The control group spent a greater proportion of time on technical skills. When categories were collapsed into "on-task" and "off-task" there was a small proportionate time difference between groups with the control group spending slightly more "on-task". See Appendix A.

It appeared as though the reduction in time did not significantly affect student achievement as measured by the performance tasks and Achievement Posttest II. However, the control group did score significantly higher on Achievement Posttest I. While the two groups varied on selected categories of time used as measured by the time on task observation device, there was only a slight difference in the time spent "on-task" and "off-task". See Appendix A.

While these findings could suggest that a reduction in time allocation would not adversely affect students' progress in vocational education classes, they were deemed inconclusive as a basis for major decision making. A number of questions arose concerning the number of teachers and students involved and the training of data collectors. Thus it was determined to improve

upon the research design and methodology and to expand the study to be implemented in the 1983-84 school year.

RESEARCH PROCEDURES

Statement of Purpose

The purpose in this study, conducted in 1983-84, was to investigate the impact of time allocation in selected Community and Home Service Programs for handicapped students. The focus of this study was on the comparison of two different allocated time periods (180 min. and 135 min.) rather than determining optimum learning time. Attention was directed toward identification of relationships between time allocation and selected variables; student achievement, student task performance, student satisfaction, teacher satisfaction, and time on task.

Research Questions

Seven questions were posed in support of the above purpose:

1. What is the relationship between time allocation and student achievement in Community and Home Service curriculum content areas?
2. What is the relationship between time allocation and student performance on selected Community & Home Service performance tasks as measured by: a) observer ratings, and b) teacher ratings?
3. What is the relationship between time allocation and student satisfaction?
4. What is the relationship between time allocation and teacher satisfaction?

5. What is the relationship between time allocation and a range of time on task variables: Students' Time on Task/Content (Basic skills, technical skills/theory, technical skills/practice, employability skills, youth organization activities); Students' Time on Task/Non-content (Youth organization activities, set-up/clean-up, and transitions); and Students' Time Off-Task (Waiting, socializing, goof off, and out of room).
6. What is the relationship between time allocation and time spent by the teacher as defined by Teacher Role (extent of interaction with individuals, small groups, whole class; monitoring students), and by Teacher Method (demonstrating, lecturing, using audio-visuals, testing, conducting discussion groups, providing dividualized instruction, assistance).
7. What is the relationship between time allocation and student achievement, task performance, and time on task for non-handicapped students as compared to handicapped students?

Research Design

The research designs used in this study were quasi-experimental. They included pretest-posttest, control group design and an expost facto, control group design (Campbell and Stanley, 1966). Case study and survey techniques were used to investigate supplemental, exploratory research questions.

Sample

Six classes in Community and Home Service Programs were

purposively selected for this study. As depicted in Figure 1, these classes represented three different school settings and involved four experienced, certificated teachers. Three classes made up the control group (state mandated time: 180 minutes) and three classes, the experimental group (reduced time 135 minutes). Five of the six classes were designated for handicapped students. One "regular" classroom was observed in order to provide baseline comparisons.

FIGURE 1

RESEARCH DESIGN

EXPANDED STUDY

School A			School B		School C
Teacher 1		Teacher 2	Teacher 3		Teacher 4
Group 1	Group 2	Group 3	Group 4	Group 5	Group 6
n = 11 Experimental Handicapped 135 min.	n = 12 Experimental Handicapped 135 min.	n = 15 Control Handicapped 180 min.	n = 11 Experimental Handicapped 135 min.	n = 12 Control Handicapped 180 min.	n = 17 Control Non-handicapped 180 min.

To determine the characteristics of the classes used in the sample, data were collected on reading level, I.Q., math ability, scholastic diagnostic scores, and knowledge of subject matter. See Table 1. These data were collected from existing school records as much as possible.

Five of the six groups used in the st[illegible], were tested for reading level. Data were not available for the control group of non-handicapped students. Though the reading level varied from a

TABLE 1

Mean scores of reading, IQ, Stanford Diagnostic, math, and knowledge of content(pre-test) by groups,

	SCHOOL A			SCHOOL B		SCHOOL C		
	TEACHER 1		TEACHER 2	TEACHER 3		TEACHER 4		
	Group 1 H/E [a]	Group 2 H/E	Group 3 H/C	Group 4 H/E	Group 5 H/C	Group 6 NH/C	Combined Experimental (1,2,4)	Combined Control (3,5)
Reading Level	2.23	3.13	3.11	2.88	4.33			
IQ				52.40	63.58			
Stanford Diagnostic	3.56	4.18	3.76					
Math				1.99	3.28*			
Knowledge of Content (Pre-Test) b	31.5	31.7	34.4	30.4	31.3	40.7**	31.2	32.2

a - H=handicapped; E=experimental; C=control; NH=non-handicapped.
b - expressed as mean percents of the total scores.
* - significantly different from group 4.
** - significantly different from combined experimental and control group.

mean of 2.23 tc 4.33 this was not a sufficient difference to establish statistical significance. Note that these students were classified as junior and senior high school students, yet they were reading on second to fourth grade level.

Intelligence test scores were available for two of the groups. The data in Table 1 shows that there was no significant difference in the mean scores of the experimental and control group located in school B. Note that the mean score for the control group was slightly higher.

Math scores were also available for the control and experimental group located in school B. There was a significant difference between the groups with the control group having a higher mean grade level score.

The Stanford Diagnostic Test scores were available for the three sections located in school A. There were no significant differences in the mean scores of this group indicating a commonality of abilities among the groups.

The Ohio Community and Home Service achievement test was administered to all classes early in the academic year. The test consisted of 15 sub-sections designed to measure the knowledge of the content of the course. The test also yielded a total score. Though the total pre-test mean scores varied from 30.4% to 40.7% the statisical analysis did not show a significant difference. When the experimental handicapped learner classes were combined as well as the control handicapped learners classes both were significantly different than the control non-handicapped learners class which had the highest mean score. However, the combined

experimental handicapped learner class and the combined control handicapped learner classes were not significantly different.

In summary, the classes did not differ statistically in knowledge of content, or reading level. Classes in school A did not differ statistically on the Stanford Diagnostic test scores. While the students in school B did differ statistically on average math scores they did not differ on I.Q. scores. Based on this information, it was believed that the classes were sufficiently similar for the purposes of this study.

Instrumentation and Data Collection

A variety of instruments were used to measure the variables of interest in this study. Each is described in the sections that follow.

Student Achievement. A standardized achievement test used in Community and Home Service Programs in Ohio was made available to the researchers through the assistance of the Ohio Vocational Education Instructional Materials Lab. This test is organized in 15 sections to reflect the specific topical content areas outlined in the Community and Home Service Task Activity Analysis guide. See Appendix B for Table of Specifications. Reading level of the instrument was adapted for use by handicapped students through the assistance of a reading specialist in the Cleveland City school district. The test was administered in November and in May.

Task Performance. Five out of 183 performance tasks included with the Community and Home Service Task Activity Analysis guide were selected for observation. These included folding and storing, making an unoccupied bed, cleaning a sink,

washing furniture, and setting tables. The selection of these tasks was based in part on commonalities among classrooms in terms of content coverage and importance of task. Other selection criteria included the representative nature of the five tasks across content areas and the observability of the behavioral specifications for each within manageable time frames.

Measuring student performance on these tasks was done in two separate ways, one of which was observer ratings. The series of behavioral specifications prescribed as leading to successful task completion on each of the selected tasks were taken from the Ohio Community and Home Service Task Activity Analysis guide. The rating scale applied to student performance in each of these behaviors consisted of a six point semantic differential ranging from "excellent" to "omitted". See Appendix B. An observer training manual, which was developed during the current project year, was used as part of a program of observers' training conducted in February. The trained observers then followed a schedule during the months of April and May whereby each student was evaluated on each of the five performance tasks.

A second procedure for generating information about task performance was implemented incorporating part of the classroom teachers' on-going, routine evaluation techniques. This procedure consisted of overall ratings on a five point scale translated from ratings of "mastery", "can do with supervision", "can't perform", to "no exposure". While teachers routinely evaluated task performance on all tasks included in the curriculum, only the data related to the five tasks selected for observation were

included in this study A sample checklist form used by the teachers is presented in Appendix B.

Student Satisfaction. A questionnaire designed specifically for use in this study was administered by classroom teachers in May. See Appendix B. The questionnaire consisted of items which polled students' attitudes on the relationship between the amount of time spent in class and their perceived level of learning. Based on the researchers' knowledge of the daily routine and the normal structure of instructional time in one of the school settings, special adaptations in the questionnaire were made to gain additional information in one school.

Teacher Satisfaction. An interview questionnaire was constucted for use in the study. See Appendix B. The objective in instrument construction was two-fold: to assess teacher satisfaction regarding time allocation, and to explore teachers' opinions and attitudes on time related issues. Interviews were conducted in May.

Time on Task. Two time on task observation guides developed by Halasz and Behm (1983) were used in this study. See Appendix B.[1] Data collection involved recording information in selected categories at two minute intervals. Two trained observers, working as a team, coded their observations on key-punch ready forms. Data were collected during whole blocks of allocated time on five consecutive school days in four of the classrooms, and on three alternating days in the remaining two classrooms. In the

[1] The reader is referred to the report of the Halasz and Behm study for a full description of this instrumentation; only details related to implementation procedures are presented here.

latter cases, the normal weekly routine involved placement of students in field settings every Tuesday and Thursday. Although possibilities existed for keeping students in the school setting for the designated week of data collection, this was not done. Such a move would have been highly intrusive. A substantial change in handicapped student's weekly routines would have made the days of data collection unlike the same days in other weeks and, therefore, an inappropriate sample. Furthermore, data collected by Halasz and Behm (1983) suggested that classroom events on Tuesdays and Thursdays are not unlike those on other days of the week.

Data Analysis

A plan for the data analysis is provided in Figure 2. Analyses were conducted as follows:

Student Achievement. Percentage sub-scores were computed for the fifteen sub-sections of the instrument as well as a total score. Data were subjected to analysis of variance between separate groups and combined experimental and control groups. An alpha level of .05 was selected as the criterion for significance. Fisher's Least Significant Difference procedure was employed as a follow-up where appropriate in order to identify particular groups as significantly different.

Student Task Performance. Mean scores on each of the five selected tasks were calculated for each student. This was done separately for each method of observation, i.e., the trained observer ratings and the teachers' evaluations of student mastery. Experimental and control groups were combined and subjected to analysis of variance and Fisher's Least Significant

FIGURE 2

Data Analysis Plan

Research Question	Variables	Instrumentation	Analytical Techniques
1	Time Allocation* Student Achievement	Standardized Achievement Test (modified for reading level)	Analysis of variance Fisher's LSD test means
2	Time Allocation* Student task performance	a.) Mastery rating check list b.) Observer rating cards	Analysis of variance Fisher's LSD test
3	Time Allocation* Student Satisfaction	Student Satisfaction Questionnaire	Fisher's LSD test Content analysis
4	Time Allocation* Teacher Satisfaction	Teacher Satisfaction Questionnaire	Content Analysis
5	Time Allocation* Student Time on Task Variables	NCRVE time on task observation guide	proportions Frequencies and means analysis of variance Student Newman, Keouls t-test
6	Time Allocation* Teacher time on task variables	NCRVE time on task observation quide	Frequencies and means proportions Analysis of variance Student Newman Keouls t-test
7	Regular vs. handicapped Student Achievement Performance, time on task	Standardized achievement test NCRVE time on task observation quide.	Analysis of variance Fisher's LSD test

*180 min. vs 135 min.

Difference procedures.

Student Satisfaction. Questionnaire data were subjected to an item-by-item content analysis. Responses to one item, a global rating of program satisfaction, were subjected to analysis of variance between groups.

Teacher Satisfaction. Questionnaire data were subjected to an item-by-item content analysis. Categories of responses were formed based on the content analysis.

Time on Task. Frequencies, means, and proportions of time were calculated using computer programming assistance provided by the National Center for Research in Vocational Education.

The minute was used as the primary unit of measure. All data were collected in numbers of minutes spent upon various on and off task activities in the classes. The proportions (or percentages) of on and off task activities were calculated with the following formula:

$$\frac{\text{number of minutes spent on the activity}}{\text{total number of minutes present in the class}} = \text{proportion of time}$$

Thus, for example, in a 180 minute class with fifteen students present, the denominator was 2700. If the fifteen students spent a total of 465 minutes on task during the class period, there was 17 percent time on task. The equation was:

$$\frac{15 \text{ students} \times 31 \text{ minutes} = 465}{15 \text{ students} \times 180 \text{ total class minutes} = 2700} = .17$$

It is important to note that the formula was applied for the number of students on task during each minute with the number of student minutes on task cumulated throughout each class period.

A number of the codes used in the observation guides were collapsed for more concise analyses and discussions of the results. This was necessary since there was an extremely small amount of time recorded for some of the content codes.

The three classifications are on task, either content or non-content, and off task. On task/content includes the

curricular-content categories of basic skills, technical skills, and employability skills. On task/noncontent includes the set up/clean up and the related categories. Off task includes the waiting/nothing, the socializing and the break category. The purpose for such specificity was to prevent any misunderstanding since the literature is replete with many variations in the meaning of time on task. It is also important to remember that the students' time is under discussion as being on task or off task in this study. The teacher's time is discussed as on or off content or as allocated time (Halasz and Behm).

Comparisons between or among the groups were calculated with the t-test and F-tests. In cases where significant differences were found at the .05 level or less, the Student Newman, Keuls procedure (Nie, it. al., 1975) was used to discern homogeneous subsets.

FINDINGS AND DISCUSSION

The findings and discussion presented here are organized by the seven research questions that guided this study.

Student Achievement

Research Question 1. What is the relationship between time allocation and student achievement in Community and Home Service curriculum content areas?

Mean scores were calculated for each of the 15 sub-sections and the total score on the pre and post achievement test. See Appendix C, Table 1 and Table 2. Scores were analyzed by separate groups as well as by combined experimental and control groups.

Analysis of variance of posttest total scores by the six classroom groups indicated that significant differences existed ($F=3.37$, $p < .01$). The control group of non-handicapped learners

had a significantly higher mean score than each of the experimental groups. In addition, one control group of handicapped learners had significantly higher mean scores than one handicapped learner experimental group. See Table 2.

Analysis of variance on gain scores, that is, the difference between pre and posttest scores, although approaching a critical F value, failed to reveal significant differences. In contrast to the findings on the posttest scores, analysis of gain scores does not show significant difference among any groups. See Table 2.

Control and experimental classes were combined for further analysis. See Table 2. When the control handicapped learner classes were combined as well as the experimental handicapped learner classes, significant differences existed ($F=8.28$, $p < .0007$). It is interesting to note that the control class of non-handicapped learners scored significantly higher than both the experimental and control group of handicapped learners on the pre-test. Yet on the posttest the non-handicapped learners scored significantly higher to only the experimental group while both control groups scored similarly. The analysis of gain scores showed one significant difference, that is, between the non-handicapped group and the experimental group of handicapped learners.

The finding on the posttest suggests that the longer time allocation is positively related to student achievement scores. In this instance it appears that the longer time was needed by handicapped students to score similarly to non-handicapped learners. See Table 3.

Table 2

Mean percent scores of pre-test, posttest and gain scores[a] by groups

	SCHOOL A			SCHOOL B		SCHOOL C		
	TEACHER 1		TEACHER 2	TEACHER 3		TEACHER 4		
	Group 1 H/E[b]	Group 2 H/E	Group 3 H/C	Group 4 H/E	Group 5 H/C	Group 6 NH/C	Combined Experimental (1,2,4)	Combined Control (3,5)
Pretest	31.5	31.7	34.4	30.4	31.3	40.7**	31.2	33.0
Posttest	34.6	30.1		32.9	45.6***	51.6***	32.2	42.9*
Gain Scores	.20	.40	4.56	3.16	9.45	12.7*	1.2	6.8

a - Gain scores were calculated for only those students who took both pre and posttest
b - H=handicapped; E=experimental; C=control; NH=non-handicapped
* - significantly different than experimental combined group
** - significantly different than experimental and control combined groups
*** - significantly different than experimental separate and combined groups
**** - significantly different than group 2

Table 3

Achievement test pre, post and gain mean percent scores for combined groups

	Combined Control (Group 3 & 5)	Combined Experimental (Groups 1,2 &4)	Non-handicapped (Group 6)*
Pre	33.0	31.2	40.7*
Post	42.9**	32.2	51.6**
Gain	6.8	1.2	12.7**

*Significantly different than experimental and control group

**Significantly different than experimental group

The opportunity to control for teacher differences was provided because one teacher taught both the experimental and control classes in one school. Analysis of the differences in gain scores and total posttest scores showed no significant differences between these two groups. It should be noted, however, that the control group had a higher mean score.

In summary, when achievement scores were analyzed by separate groups there were significant differences among groups on the posttest but not on the gain scores. When groups were combined, both control groups scored significantly higher than the experimental group on the posttest while the non-handicapped group scored significantly higher than the experimental group on gain scores.

Research Question 2a. What is the relationship between time allocation and student performance on selected community and home service performance tasks?

Descriptive data on students' task performance is provided in Table 4. Comparison of group means shows that, with the exception of the bedmaking task, students in the class for non-handicapped learners scored higher on task performance than the groups of handicapped learners. No explanation is apparent to the researchers for the non-handicapped students comparatively lower performance on the bedmaking task.

Analysis of variance revealed significant differences between groups on four of the five performance tasks: bedmaking ($F=4.09$, $p < .0028$); cleaning a sink ($F=6.29$, $p < .0001$); washing furniture ($F=5.32$, $p < .0004$); and setting a table ($F=6.5$, $p < .0001$). There were no significant differences among the groups on the folding task. Fisher's test for least significant differences permitted identification of groups that had varied at the significant level. See Table 5.

Disregarding the expected differences between non-handicapped and handicapped learners, it is important to note that while significant differences existed for each task among groups, when the research was controlled for "teacher" difference, that is when the same teacher taught both the experimental and control groups (group 4 and 5) only one of five tasks had a significant difference. The experimental group (4) did score significantly higher than the control group (5) on the table setting task. Thus, it might be that the significant differences that did occur were created by teacher differences rather than time allocation.

Table 4

Mean scores from observer ratings of task performance by groups

	SCHOOL A			SCHOOL B		SCHOOL C		
	TEACHER 1		TEACHER 2	TEACHER 3		TEACHER 4		
Task	Group 1 H/E[b]	Group 2 H/E	Group 3 H/C	Group 4 H/E	Group 5 H/C	Group 6 NH/C	Combined Experimental (1,2,4)	Combined Control (3,5)
Folding	3.88	4.36	4.28	4.01	4.00	4.52	4.09	4.14
Bedmaking	3.08	3.88	4.34	2.72	3.14	3.85	3.28	3.76
Cleaning Sink	3.58	4.51	3.85	3.19	3.13	4.75	3.82	3.54
Washing Furniture	4.02	3.98	4.35	3.51	3.26	4.74	3.87	3.85
Setting Tables	3.42	4.02	4.35	3.92	2.86	4.43	3.79	3.63

a - scale: 5.0-0.0
b - H=handicapped; E=experimental; C=control; NH=non-handicapped

Table 5

Groups with significant differences between mean scores on task performance ratings

	SCHOOL A			SCHOOL B		SCHOOL C
	TEACHER 1		TEACHER 2	TEACHER 3		TEACHER 4
Task	Group 1 H/E[a]	Group 2 H/E	Group 3 H/C	Group 4 H/E	Group 5 H/C	Group 6 NH/C
Bedmaking			A*		A	
			B*	B		
	C		C*			
		D*		D		
				E		
Cleaning Sink			A			A*
	B					B*
				C		C*
					D	D*
	E	E*				
		F*		F		
		G*			G	
Washing Furniture	A					A*
		B				B*
				C		C*
					D	D*
			E*	E		
			F*		F	
	G*				G	
		H*			H	
Setting Tables	A					A*
					B	B*
	C		C*			
			D*		D	
		E*			E	
				F*	F	

* - highest mean score of the lettered pair for task.
a - H=handicapped; E=experimental; C=control; NH=non-handicapped

In regard to the bedmaking task, the highest performing group (group 3, a control group) significantly out-ranked two experimental groups. The interpretation of advantage due to extra time is mitigated, however, since this group also out-ranked the other control group at a significant level. Similarly, two of the experimental groups performed at significantly different levels. Hence, findings related to differences associated with time allocation are contradictory.

On the cleaning sink tasks, disregarding the advantages held by the "non-handicapped" group (group 6), the findings were again mixed. That is, group 2 (experimental) performed significantly better than one control group, but also significantly better than the two other experimental groups. Examination of the washing furniture and setting tables tasks, revealed similar patterns. Just as one control group significantly out-ranked one experimental group, or vice-versa, it also significantly out-ranked one or more of its equal time cohort groups. No conclusions regarding an association between task performance as measured by trained observer ratings and amount of time allocation can be drawn on the basis of these findings.

The control groups and experimental groups were combined for further analyses. See Table 6. There were no significant differences between the control and experimental groups of handicapped learners. However, on three of the five tasks, that is table setting, washing furniture, and cleaning sinks, the control group of non-handicapped learners scored significantly higher. See Table 6. Thus, differences seem to be attributed to ability levels rather than time allocation.

Research Question 2b. What is the relationship between time allocation and student performance on selected Community and Home Service performance tasks as measured by teacher ratings?

Mean scores by classroom group on teacher ratings of task mastery for the five selected performance tasks are presented in Table 7. Comparison of group means across the five tasks reveals that teachers rated students somewhat higher on the folding task,

Table 6

Mean observer ratings of task performance
by combined groups

	Combined Control Groups (3 & 5)	Combined Experimental Groups (1,2,& 4)	Non-Handicapped Group (6)
Folding	4.14	4.09	4.52
Bedmaking	3.76	3.28	3.85
Cleaning Sink	3.54	3.82	4.75*
Washing Furniture	3.85	3.87	4.74*
Setting Tables	3.63	3.79	4.43*

* Significantly different than all other groups

the cleaning sink task, and the washing furniture task than on the bedmaking and setting tables tasks. It may be that the latter two tasks are either more problematic for students to master than the other tasks, or that less instructional time is devoted to these tasks than is necessary for student mastery.

Comparison of means across classroom groups reveals no obvious pattern of differences between experimental and control groups. One pattern within the experimental groups is of special interest. Specifically, group 2 ratings are consistently higher than group 1 ratings. Groups 1 and 2 had the same teacher, and therefore, the same "rater" for task mastery. Reference to the preceding discussion of findings for task performance as rated by trained observers reveals a similar pattern of differences

Table 7

Mean scores from teacher ratings of task mastery by groups

	SCHOOL A			SCHOOL B		SCHOOL C		
	TEACHER 1		TEACHER 2	TEACHER 3		TEACHER 4		
TASK	Group 1 H/E[b]	Group 2 H/E	Group 3 H/C	Group 4 H/E	Group 5 H/C	Group 6 NH/C	Combined Experimental (1,2,4)	Combined Control
Folding	4.00	5.00	4.69	4.83	5.00	-	4.62	4.82
Bedmaking	3.64	4.67**	4.38***	3.00	3.67	-	3.77	4.07
Cleaning Sink	4.55	5.00	5.00	4.50	4.17	-	4.68	4.62
Washing Furniture	4.55	5.00	5.00	4.67	4.33	-	4.74	4.69
Setting Tables	3.73	4.67*	3.06	-	3.91	-	4.21****	3.41

a - scale: 5-0
b - H=handicapped; E=experimental; C=control; NH=non-handicapped
* - significantly different than group 3
** - significantly different than groups 1,4,5
*** - significantly different than group 4
**** - significantly different than combined control group

between groups 1 and 2. While this phenomenon has only indirect implications for comparisons between experimental and control groups, it does contribute as a measure of cross-validation of the two modes of observing task performance.

Analysis of variance indicated significant differences between experimental and control groups on two of the performance tasks. See Table 7. These included the bedmaking task ($F=3.97$, $p < .0065$) and the table setting task ($F=3.67$, $p < .0187$). Follow-up testing using the Fisher's Least Significant Difference statistic, provided a means for designating which of the groups were significantly different.

In regard to the bedmaking task, findings were equivocal in terms of differences between experimental and control groups. One experimental group (group 2) out-performed one control group as well as the two other experimental groups. This group's higher ratings may have been influenced by factors other than time allocation. Additionally, one control group (group 3) significantly out-ranked one of the experimental groups. The difference in these two groups, though possibly a function of time allocation, may have been influenced by differences between teachers and by differences in teacher's conceptions of task "mastery". There is no basis for suggesting that a higher level of mastery with respect to the bedmaking task is associated with a greater amount of time allocation.

With regard to the table setting task, a significant difference was identified between one of the experimental groups and one of the control groups. The experimental group, having less available time, mastered the task at a significantly higher

level than the control group. Not withstanding possible differences in teachers' definitions of mastery, this finding suggests less than optimum advantages for extended time allocation in respect to table setting skill development.

The control and experimental groups were combined for further analysis. No significant differences existed between groups on four of the five tasks. However, on the table setting task the experimental group scored significantly higher than the control group. This finding supports the reduction in time allocation.

Satisfaction with Time Allocation

Research Question 3. What is the relationship between time allocation and student satisfaction?

Satisfaction questionnaires for students were distributed to teachers in May. See Appendix B. Teachers administered these short, paper and pencil instruments in late May. Students were polled on their preferences regarding time in relation to the nature of class activities and potential for learning. As described earlier, the questionnaire was adapted for use in the experimental and control groups that shared the same teacher. In this situation, the researchers were aware of a normal daily routine that permitted precisely stated questions designed to tap student preferences for "related" and laboratory components of the program more specifically than was possible in other classrooms. Although adaptation of the instrument precluded direct comparisons between all respondent groups, the potential information yield through content analyses of student responses was not substantially compromised.

One of the questionnaire items was common for all students completing the questionnaire. This item required students to indicate an overall attitude about the program by placing an "X" under one of the three "faces": smiling, a straight expression, or frowning. Comparison between groups on this item yielded no significant differences in level of student satisfaction with the program. Content analysis was used in the other items in the questionnaire. A summary of the results can be found in Appendix C.

Through their responses on the basic form of the student satisfaction questionnaire, students indicated several preferences. Although a clear majority indicated interest in spending less time n class, opinions were mixed in regard to how class time should be structured. "Doing" and practicing held a slight edge over class discussions and demonstrations, but a decided preference was voiced for learning something new as compared to practicing what is already known. Additionally, although most students felt that more time in class would lead to more learning, they did not form a united stand on the opposite condition -- that less time would result in less learning. Opinions were mixed on the latter point. In general, overall attitude toward the program was more favorable than unfavorable.

Examination of responses on the adapted questionnaire revealed a profile of students who are basically satisfied, at least in terms of overall attitude, with their program and with the structural arrangement of time and activities within the program. On some counts, however, student opinions about

increasing or decreasing time allottments for various activities were mixed. Unanimity of opinions among these students is not apparent. Students, of course, had experience with only one measure of time allocation and could not have based their judgements on experience with both versions of time allocation.

Research Question 4. What is the relationship between time allocation and teacher satisfaction?

Teacher interview instruments were implemented with the teachers of the experimental and control handicapped learner groups in May. See Appendix B. The teacher in the non-handicapped learner control group was not interviewed. A summary statement of teacher responses for each interview item can be found in Appendix C.

Through a process of content analysis certain recurring themes were evident in the teachers' responses to the six interview questions. In general teachers suggested that:

1. Content coverage over the school year can remain the same whether time allocation is shorter (time = 135 minutes) or longer (time = 180 minutes).
2. Longer periods of time allocation for in-school instruction place greater demands on teacher planning than shorter periods of time allocation, if high levels of student motivation are to be maintained.
3. Student learning would remain about the same over the school year whether time allocation is shorter (time = 135 minutes) or longer (time = 180 minutes). Factors other than time allocation are important in relation to learning for handicapped students.

4. Field experiences in "real" work settings are valuable in increasing student motivation and learning, regardless of time allocation.

5. If given a choice, teachers would prefer a shorter measure of time allocation (time = 135 minutes) than longer time allocation (time = 180 minutes).

Time on Task

Research Question 5. What is the relationship between time allocation and a range of task variables included in time on task content, time on task/non-content and time off task?

As the category of time on task was broken down into six sub-groups all classes spent the largest proportion of time on technical skills - theory and technical skills-practice. See Table 8. The experimental groups spent more proportionate time than the control groups on basic skills. No time was devoted to youth organizations by any class. A very small proportion of time was spent on the sub-group, employability skills.

Within the time on task/non-content category, the greatest proportion of time across all groups was spent on "set-up". Again, an insignificant amount of time, .09%, was spent on youth organizations and this was indicated by only one class.

Within the time off-task category the sub-groups of "breaks" and "socializing" receive the greatest proportion of time for the control groups while experimental groups spent the greatest proportion of time on "waiting" and "breaks". The greatest proportion of time for the non-handicapped class was spent in the sub-category "goof-off".

The analysis of variance procedure was used to determine if significant differences existed among groups in respect to

percent of time spent on time on-task/content, time on-task/non-content and time off-task. Significant differences did exist among groups on the variable time on task content ($F=5.82$, $p < .0001$). Group 3 did spend a significantly greater percentage of time (74.10) on content than all other groups. Group 1, which was an experimental group located in school A, spent a significantly greater percentage of time (68.15) on the category than group 5, a control group located in school B. See Table 8.

Analysis of variances procedure for the variable time on-task/non-content did yield significant differences ($F=15.56$, $p = .0001$). The control group of non-handicapped learners had a significantly lowr mean percentage of time spent on this category than all other groups. In addition, group 2, an experimental group in school A, spent a significantly greater percentage of time on-task/non-content than the control group in that school. See Table 9.

Significant differences did exist among groups on the variable time off-task as calculated by use of analysis of variance ($F=23.94$, $p = .0001$). Again, the control group on non-handicapped learners differed from all other groups by spending a greater percentage of time off-task. Both the experimental and control groups in school B spent a significantly greater percentage of time off-task than the three groups located in school A. See Table 9. While significant differences did occur between some groups, when the experimental and control groups of handicapped learners were combined for analysis the t-test indicated there were no significant differences between these two

Table 8

Distribution of percent of time spent by students in Community and Home Service Programs

	CONTROL				EXPERIMENTAL			
Group	3	5	$\bar{X}$%(3+5)	6	1	2	4	$\bar{X}$%(1,2,4)
ON-TASK CONTENT								
%Basic Skills	0.00	2.62	1.31	00.00	9.65	4.81	1.64	5.37
%Technical Skills	42.41	15.36	28.88	25.97	15.59	32.35	14.68	20.86
%Technical Practice	22.37	42.68	32.53	11.72	34.25	27.69	44.96	35.63
%Employability	0.00	1.67	.84	0.00	4.41	0.00	3.47	2.65
%Youth Organization	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
%Other Content	5.02	1.31	3.16	27.17	2.98	.52	1.55	1.67
ON-TASK NO-CONTENT								
%Youth Organization	0.00	0.00	0.00	0.00	0.00	0.00	.09	.03
%Set Up	11.88	6.88	9.38	4.74	16.26	18.35	6.54	13.72
%Out of Room	9.05	.20	4.63	2.96	4.14	4.86	.82	3.27
%Other on Task	1.85	10.65	6.25	0.00	.86	0.00	9.18	2.95
OFF TASK								
%Breaks	0.00	9.38	4.69	1.34	1.09	0.00	8.41	3.16
%Wait	0.10	2.29	1.19	3.90	4.71	8.67	2.56	5.31
%Socialize	3.94	3 52	3.73	3.27	3.13	0.00	5.03	2.72
%Goof Off	0.00	2.04	2.03	15.79	1.43	2.27	.64	1.45
%Restroom	1.98	1.31	1.65	.72	.79	.38	1.50	.89
%Other	1.36	.40	.88	2.50	.85	0.00	.13	.33

Table 9

Summary of percent of time spent by students in Community and Home Service Programs

	SCHOOL A			SCHOOL B		SCHOOL C
	TEACHER 1		TEACHER 2	TEACHER 3		TEACHER 4
	H Group 1 H/E[a]	H Group 2 H/E	H Group 3 H/C	H Group 4 H/E	H Group 5 H/C	NH Group 6 NH/C
Time on Task content	68.15**	65.75	74.10	65.00	59.70	66.06
Time on Task non/content	19.74	23.50***	17.60	18.00	22.30	7.31*
Time off Task	12.11	10.75	8.30	17.00****	18.00****	26.63*
TOTALS	100.00	100.00	100.00	100.00	100.00	100.00

* - Significantly different from all other groups
** - Significantly different from group 5
*** - Significantly different from group 3
**** - Significantly different from groups 1, 2, 3, 6
a - H=handicapped; E=experimental; C=control; NH=non-handicapped

groups.

In summary, it appears as though the control group of non-handicapped learners differed significantly from the handicapped learner classes in respect to time spent off-task and time on-task/non-content. There was no significant difference among the groups for the variable time on-task/content when groups were combined. Though some differences did occur between separate groups it does not appear that changing the time allocation altered the percentage of time that was spent on-task, or off-task.

Research Question 6a. What is the relationship between time allocation and time spent by the teacher as defined by teacher role, i.e. extent of interaction with individuals, mall groups, whole class, or monitoring students?

Teachers in all classes spent the greatest proportion of

time interacting with all students at once or with small groups or individuals. They spent the least amount of time working in the room without observing or interacting with students. The teachers were absent from the room a very small proportion of the time.

Teachers in classes with greater time allocation, i.e. control groups, spent a greater proportion of time interacting and observing all students at once. See Table 10. Note that the teacher in Group 6 had the greatest percentage of time in this category. This may be due to the exceptionality of this situation as compared to all other classes in the study, that is, no teacher aide was available to assist the teacher in Group 6.

Teachers in the experimental classes spent a greater proportion of the class time on observing and interacting with small groups or individual students than did the teachers of control groups. Again, note that teacher aides were present in all classes other than Group 6.

Research Question 6b. What is the relationship of time allocation and time spent by teacher as defined by teacher method?

Trained observers recorded, at two minute intervals, the method of instruction which was being used by the teacher. As noted in Table 11, all teachers used the majority of the 16 methods identified on the observation sheet.

Both the control and experimental groups spent the greatest proportion of time observing students at work. The contol class teachers spent approximately equal percentage of time on giving instructions and demonstrations. The experimental group teachers

Table 10

Percent of time spent on various teacher roles as defined by interaction with students

	CONTROL					EXPERIMENTAL			
Group	3	5	$\bar{X}$% (3&5)	6	$\bar{X}$% (3,5,&6)	1	2	4	$\bar{X}$% (1,2&4)
Observing & Interacting with all students	27.7	37.0	32.35	86.2	50.3	34.5	22.0	28.3	28.27
Observing/interacting w/small groups/indiv.	43.1	43.3	43.2	4.1	30.16	38.6	54.5	42.0	45.03
Observing/no interacting	17.7	7.8	12.7	6.9	10.8	20.7	17.8	11.2	16.57
In Room No Observing/interacting	8.1	8.1	8.1	-	5.4	1.6	4.5	10.7	5.6
Not in Room	2.1	3.7	2.9	.2	2.0	.7	1.1	1.0	1.6
N/A	1.3	-	.65	2.6	1.13	.1	-	.3	.13
Data missing	-	-	-	-	-	.2	-	.3	.17

Table 11

Percent of time spent on various teaching methods

	CONTROL					EXPERIMENTAL			
Group	3	5	$\bar{X}$'s (3,5)	6	$\bar{X}$'s (3,5,6)	1	2	4	$\bar{X}$'s (1,2,4)
One/one	5.3	9.3	7.3	6.9	7.2	0.0	0.6	5.4	2.0
Questioning	2.6	12.2	7.4	0.6	5.1	7.9	9.6	15.1	10.9
Discipline	0.0	2.2	1.1	1.3	1.2	3.3	.8	0.0	1.4
Manager Role	4.5	3.7	4.1	0.0	2.7	4.9	9.9	1.5	5.4
Lecture	3.2	4.4	3.8	0.0	2.5	1.1	0.3	2.0	1.1
Announcements	3.2	2.2	2.7	0.2	1.9	3.0	5.1	1.0	3.0
Giving Instruction	15.1	5.6	10.4	13.3	11.3	17.9	25.4	13.7	19.0
Demonstration	12.2	6.3	9.3	18.3	12.7	11.1	13.3	7.8	10.7
Audio/Visual	0.0	1.1	.6	0.0	.4	0.0	0.0	0.0	0.0
Tests	12.8	0.0	6.4	7.5	6.7	7.3	0.0	0.0	2.4
Observing	20.3	21.9	21.1	25.4	22.5	20.4	18.1	23.4	20.6
Working on Own	14.1	4.4	9.4	2.6	7.0	12.8	9.6	3.9	8.8
Socializing	0.0	9.3	4.7	0.0	3.1	0.3	0.0	9.8	3.8
Pass Materials	1.5	1.1	1.3	8.2	3.6	0.0	0.3	0.0	0.1
Help Clean	1.7	8.9	5.3	8.4	6.3	4.3	4.8	2.9	4.0
Not in Room	1.7	4.8	3.3	1.5	1.4	3.5	1.4	1.0	2.0
N/A	1.3	2.2	1.8	2.6	2.0	0.8	0.0	12.7	4.6
Other	0.6	0.4	.5	0.0	.3	0.3	0.8	0.0	.4
No Data	0.0	0.0	0.0	3.2	1.1	0.2	0.0	0.0	.1
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

spent equal time on questioning and demonstrations.

As compared to the control group teachers, the experimental class teachers spent twice as much time on questioning and managing while the control group teachers spent twice as much time as the experimental class teachers on lecture, tests, helping to clean-up and on one-to-one instruction. The method which was used the least by all teachers was the use of audio-visual materials.

This data also provides a view of the methods employed by individual teachers. For example, the teacher in Group 6 used the fewest different methods and spent over half of the class time utilizing three methods; giving instructions, giving demonstrations, and observing students at work. The utilization of the three methods compared positively to the teachers in Groups 1,2, and 3 but contrasted with the methods used by the teacher of Groups 4 and 5. The teacher of Groups 4 and 5 spent considerable amount of time on the questioning technique and similar time on giving instructions and observing students work. Although analysis was not performed to determine the statistical relationship it appears that these similarities or differences were not related to student achievement or to time allocation.

Non-handicapped versus handicapped learners

Research question 7. What is the relationship between time allocation and student achievement, task performance, and time off task for non-handicapped students as compared to handicapped students?

When mean scores for the combined handicapped learner experimental and control groups were compared to the non-handicapped learner control class signficant differences did

occur. As shown in Table 12 the control group of non-handicapped learners had signficantly higher scores on the pre-test and the gain scores. As measured by the posttest the control group of non-handicapped learners were significantly different than the experimental group of handicapped learners but not different than the control group of handicapped learners.

Table 12

Mean scores of student achievement, task performance and time on task for non-handicapped learners and handicapped learners.

	Combined Experimental Handicapped		Control Handicapped		Control Non-Handicapped	
Achievement: (%)						
Pre test	31.2		33.0		40.7*	
Post test	32.2		42.9**		51.6**	
Gain scores	1.2		6.8		12.7*	
Task performance: ($\bar{x}$)						
folding	4.09		4.14		4.52	
table	3.79		3.63		4.43*	
bed	3.28		3.76		3.85	
washing furniture	3.87		3.85		4.74*	
cleaning sink	3.82		3.54		4.75*	
Time on task:	%	Min	%	Min	%	Min
On Task/Content	66.66	89.99	68.93	124.07	66.07	118.92
On Task/non-content	20.80	28.08	19.39	34.90	7.3*	13.14
Off Task	12.84	17.33	11.86	21.35	26.74*	48.13

*Significantly different than all other groups
**Significantly different than experimental group

When mean scores on task performance of the three groupings were compared, signficant differences were identified. On three of the five tasks the non-handicapped learners scored significantly higher than the handicapped learner groups. On two tasks, folding and bedmaking no significant differences were identified.

Analysis of time on task/content showed no significant

differences between the groups. However, the non-handicapped learners spent significantly less time on task/non-content and signficantly more time off task than the other groups.

Using this data as a basis it appears the non-handicapped learner control group could be viewed as signficantly different than the handicapped learner groups. In only one instance was there a similarity and that was with the control group of handicapped learners in respect to scores on the achievement posttest.

While the higher scores were predictable, it is surprising to see that the non-handicapped learners spent considerably more time off-task and less time on the category on task/non-content. This would indicate that while spending considerably more time off task the non-handicapped learners out performed the handicapped learners.

SUMMARY AND RECOMMENDATIONS

Decision makers in vocational education have been pressed to justify the large blocks of time devoted to secondary vocational education programs. Recent research indicates that time on task is directly related to achievement (Bloom, 1974; Borg, 1980; Frederick and Walberg, 1980). Reports from the National Center for Research in Vocational Education (Halasz and Behm, 1983) indicate that as class length increases so does time on task. No studies were found that focused on home economics classes or in vocational education classes that related time on task to performance levels.

The purpose of this study was to determine the effects of

time allocation on student achievement in ocational home economics Community and Home Service programs. A quasi-experimental design was used including three schools, four teachers, and six classes. Of the six classes, one group provided "baseline" data on a program for non-handicapped learners. Of the remaining five classes for handicapped learners, two groups were control groups with 180 minutes of allocated time and three were experimemtal with 135 minutes of allocated time. The dependent variables of achievement, satisfaction, and time on task were measured to determine the effect of time allocation. Student achievement was measured by a paper and pencil cognitive test and by performance on five selected tasks which were rated by trained observers and by classroom teachers. Satisfaction was measured by questionnaires administered to students and interviews conducted with classroom teachers. Time on task was measured using data collected by trained observers on student activity and teacher activity.

Results of the study indicated there was no variation at a significant level for task performance but the control group did score significantly higher on the paper and pencil test. The time on task category of on task/content showed no significant difference but the non-handicapped learner control group showed significantly more time off task and significantly less time on task/non-content. There were no significant differences between the combined experimental and the combined control groups. Content analysis of the satisfaction measures indicated a teacher preference for the reduced time allocation. When the study controlled for teacher difference, no significant differences

were identified between groups on achievement or time on task with one exception. The experimental group did out perform the control group on one performance task.

Based upon this quasi-experimental study it can be concluded that the group of non-handicapped learners did perform at higher levels than both the experimental and control groups of handicapped learners. This finding is not surprising but does validate the logical expectations of the researchers.

Of most interest in this study was data showing behaviors that would distinguish the control from the experimental groups of handicapped learners. While some difference within categories and among groups did exist, when grous were combined or controlled for teacher differences no significant differences were identified for the most part. It should be noted that the control group did out perform the experimental group on the achievement posttest and when the study was controlled for teacher differences the experimental group out performed the control group on one performance task.

Since the classes composed a purposive sample and the number was small it is not possible to generalize to all other similar classes. Yet, findings from this study, for these groups, suggests that a reduction in time would not significantly affect student performance.

Furt er research is needed in respect to time allocation in vocational education classes. This study could be replicated with other vocational service areas and with other types of learners. Research designs that would more clearly identify optimum learning time would be beneficial.

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APPENDIX A

Research Model

Pilot Study

RESEARCH MODEL

COLLABORATIVE PROCESS

Identify need or problem for collaborative effort.

↓

Communicate problems with possible collaborators.

↓

Recognize stipulations and resources of each collaborator and possible benefits to each.

↓

Agree upon:
1) significance of problem
2) role and limitations of each collaborator.

EXIT ↓

Propose design, identifying precise efforts and outcomes.
1) time allotment
2) resource allocation
3) financial commitment

EXIT ↓

Operationalize efforts. (Planning)
1) Develop time-line and procedures
2) Establish precise responsibilities
3) Establish a problem-solving communication network
4) Establish a monitoring process
5) Orient all persons involved of the total effort and their roles

EXIT ↓

Implement Plans

↓

Recognize outcomes.
1) to original problems
2) to each collaborator

↓

Impact effort on problem.

OHIO EXAMPLE

Cleveland Schools

Cleveland Schools → Ohio Dept. of Ed. → OSU → consultants (National Center for Research in Vocational Education)

Cleveland Schools ↔ OSU
↕
Ohio Dept. of Ed.

- OSU - research design/specifications
- State Dept. - instrumentation
- Cleveland Schools - feedback/feasibility
- Consultant - instrumentation

Note: Pilot study clarified scope of effort.

- OSU - orientation; observer training; data analysis and interpretation; research implications
- State Dept. - coordination; red tape slashing (monitoring); determines data collection sites
- C.E.V.E.C. - data collection; feedback/feasibility
- Cleveland Schools - coordination; monitoring; data collection; data analysis
- Consultant - observer training

TIME ALLOCATION STUDY

PURPOSE: The purpose of this study was to determine the impact of time allocation on achievement as measured by paper/pencil tests performance of tasks, and time on task of handicapped students enrolled in Community and Home Service Programs.

LOCATION: East High School, Cleveland, Ohio

DESIGN: Experimental/Control Group Design

DEPENDENT VARIABLE: Standardized achievement test
Performance of selected tasks

INDEPENDENT VARIABLE: TIME ALLOCATION — Control: 3 clock hours
Experiemental: 2°hours, 15 minutes

SAMPLE: Junior and senior special needs students enrolled in Home Economics Occupational program, Community and Home Service.

CONTROL GROUP: 13 students enrolled, 1 section

EXPERIMENTAL GROUP: 25 students enrolled, 2 sections (13 and 12 stu

Groups were tested on following variables to determine 'match'

Variable: Years in home economics program.				
C	12	1.916	.017	Signif: Differ
E	25	1.52		
Variable: Reading level				
C	12	2.19	.81	N.S.D.
E	15	2.33		
Variable: Stanford Diagnostic Test (total score)				
C	14	14.50	.29	N.S.D.
E	21	10.95		
Variable: Math Comprehension				
C	12	24.5	.52	N.S.D.
E	20	22.6		
Variable: Math Cognitive				
C	12	9.33	.57	N.S.D.
E	20	9.90		

Variable: Math Application

C	12	8.916	.97	N.S.D.
E	20	8.95		

Variable: Knowledge of Content/ Achievement Test 1

C	11	49.72	.25	N.S.D.
E	20	42.25		

Variable: Knowledge of Content/Achievement Test II

C	10	73.9	.01	Significant
E	17	58.35		Difference

RESULTS:

Hypothesis: There will be no significant difference between groups on achievement test I scores.

Variable: Post achievement Test I

C	8	56.875	.01	Significant
E	13	35,692		Difference

Comment: Hypothesis was not supported as the control group scored significantly higher than experimental group.

Hypothesis: There will be no signficant difference between groups on achievement test II scores.

Variable: Post achievement Test II

C	9	47.777	.85	N.S.D.
E	13	49.23		

Comment: Hypothesis is supported. While the experimental group scored slightly higher than control group it was not sufficiently higher to create a significance.

Hypothesis: There will be no signficant difference between groups on performance score of bedmaking task.

Variable: Performance score bedmaking task.

C	11	3.72	.47	N.S.D.
E	13	3.38		

Comment: Hypothesis is supported. While control group scored slightly higher it was not sufficient to indicate a signficant difference.

RESULTS:

Hypothesis: There will be no significant difference between groups on performance score of folding task.

Variable: Folding Task Score

C	11	3.45	.16	N.S.
E	14	2.85		

Comment: Hypothesis is supported. While control group scored higher on this task the difference in the mean scores of each group is not significant.

Hypothesis: There will be no signficant difference between groups on perfomrance score of temperature taking task.

Variable: Temperature taking task

C	10	2.3	.53	N.S.
E	13	2.07		

Comment: Hypothesis is supported. While control group scored slightly higher the difference between the two group is not signficant.

Hypothesis: There will be no signficant difference between groups on performance score of pulse taking task.

Variable: Performance score/pulse taking task.

C	10	3.10	.35	N.S.
E	13	2.615		

Comment: Hypothesis is supported. While the control scored higher the difference was not significant.

Hypothesis: There will be no significant difference between groups on performance score of respiratory task.

Variable: Performance score/respiratory task

C	10	2.60	.26	N.S.
E	13	3.23		

Comment: The hypothesis is supported. Although the experimen group scored higher on this task the difference in mean scores was not significant.

CONTROL GROUP
N = 12

PRELIMINARY ANALYSIS

TIME ON TASK

DATE	ON TASK/CONTENT A	B	C	OFF TASK D	ON TASK/NONCONTENT E	F	G	TOTAL
5/17	35	9	0	4	16	19	17	100
5/19	12	34	31	0	13	7	3	100
5/24	23	48	0	8	10	1	10	100
5/26	0	53	0	18	15	4	10	100
6/1	15	37	4	0	7	7	30	100
6/2	0	76	0	0	14	0	10	100
6/6	0	58	0	1	20	0	21	100
6/8	0	92	0	0	8	0	0	100
Totals	85	407	35	31	103	38	101	800
% over total days	11	51	4	4	13	5	12	100
NCRVE Study	6.7	41.1	8	25.3	7.2	6.1	5.7	

	Cleveland	NCRVE
ON TASK	84	69
ON TASK/CONTENT	66	55.8
OFF TASK	16	31

EXPERIMENTAL GROUP
N = 12

PRELIMINARY ANALYSIS

TIME ON TASK

DATE	ON TASK/CONTENT A	B	C	OFF TASK D	ON TASK/NONCONTENT E	F	G	TOTAL
5/17	0	26	0	0	64	0	10	100
5/19	4	39.5	28	4	0	.5	24	100
5/24	26	23	0	20	12	9	10	100
5/26	10	39	0	23	7	7	14	100
6/1	52	33	0	0	0	3	12	100
6/2	43	31	0	0	9	0	17	100
6/6	0	7	0	16	31	16	30	100
6/7	41	22	0	0	9	3	25	100
Totals	176	220.5	28	63	132	38.5	142	800
% total time	22	28	4	7	17	5	17	100
NCRVE Study	6.7	41.1	8	25.3	72	61	5.7	

	Cleveland	NCRVE
ON TASK	76	69
ON TASK CONTENT	54	55.8
OFF TASK	24	31

Codes Used in Observation Guides	Collapsed categories Used for Analysis	Classification Used for Discussion
Basic skills with technical skills: reading, calculating and writing Basic skills separate: reading, calculations, and writing	A.[1] Basic skills	On task/content
Technical skills: theory or practice	B. Technical skills	On task/content
Job-seeking, maintaining, and advancing skills Knowledge of the world of work Work attitudes and values	C. Employability skills	On task/content
Waiting/nothing, socializing	D. Off task	Off task
Setting up, cleaning up	E. Set up/clean up	On task/noncontent
Listening, conference with teacher, out-of-room related	F. Related	On task/noncontent
Taking break, out-of-room nonrelated	G. Break	Off task

FIGURE 2. COLLAPSED CATEGORIES AND CLASSIFICATIONS OF CODES USED FOR ANALYSIS AND DISCUSSION

[1] Letters denote code on charts.

APPENDIX B

Instruments

Table of Specifications

Ohio Community and Home Service Achievement Test

Part I:

Section	Title	# Items
1	Give Personal Care to Patients	20
2	Take and record vital signs	14
3	lift, move and transport patients	26
4	Perform special care	31
5	Care for infants and children	45
6	Planning, Preparing and Feeding	27
	sub-total	163

Part II:

Section		
7	Cleaning Equipment care	15
8	Furnishings Care	21
9	Resilient and Masonry Floor Care	24
10	Draperies, Uphoslstery, Carpeting Care	19
11	Provide room care	19
12	Restroom care	14
13	Public Area Care	15
14	Laundry Services	17
15	Careers	27
	sub-total	171
	TOTAL	334

OHIO VOCATIONAL HOME ECONOMICS
COMMUNITY AND HOME SERVICE
SPECIAL PROJECT

RATING: _____
(Overall Performa
1 Low to 5 Hi

STUDENT'S NAME _____

Date _____

JOB: Institutional and Commercial Cleaning Aide
DUTY: Provide Laundry Care
TASK: Fold and Store Articles

	EXCELLENT	ABOVE AVERAGE	AVERAGE	POOR	ATTEMPTED - UNABLE TO COMPLETE	OMITTED
1. Remove articles from dryer immediately						
2. Fold flat pieces to a convenient size for storing						
3. Fold sheets, tablecloths, blankets and other large pieces lengthwise first						
4. Fold crosswise until the desired storage size is reached						
5. Place each folded item in stacks similar to storage shelf stack size						
6. Store linen and garments properly						
7. Lock service room door						

VOCATIONAL HOME ECONOMICS
COMMUNITY AND HOME SERVICES
SPECIAL PROJECT

RATING: _____
(Overall Performance)
1 Low to 5 High

STUDENT'S NAME _____

Date _____

JOB: Home and Institutional Health Aide
DUTY: Planning, Preparing, Feeding
TASK: Set Tables

	EXCELLENT	ABOVE AVERAGE	AVERAGE	POOR	ATTEMPTED - UNABLE TO COMPLETE	OMITTED
1. Determine cleanliness and proper position of tables and chairs						
2. Determine necessary supplies						
3. Determine proper placement of table cloth or place mat						
4. Determine proper placement of centerpiece and condiments						
5. Determine proper placement of napkin						
6. Determine proper placement of flatware						
7. Determine proper placement of cups, saucers, plates and glasses						
8. Determine if each table is properly set						

OHIO VOCATIONAL HOME ECONOMICS
COMMUNITY AND HOME SERVICES
SPECIAL PROJECT

RATING: _____
(Overall Performance)
1 Low to 5 High

STUDENT"S NAME _____

Date _____

JOB: Institutional and Commercial Cleaning Aide
DUTY: Care for Restrooms
TASK: Clean Sink Area

	EXCELLENT	ABOVE AVERAGE	AVERAGE	POOR	ATTEMPTED - UNABLE TO COMPLETE	OMITTED
1. Prepare solution						
2. Assemble equipment and supplies						
3. Clear the sink area of soaps and personal items						
4. Clean inside surface, overflow, metal fixtures, underside surface of bowl						
5. Rinse and dry bowl						
6. Polish metal fixtures						
7. Wash wall area nearby						
8. Clean up and put away supplies						

OHIO VOCATIONAL HOME ECONOMICS
COMMUNITY AND HOME SERVICES
SPECIAL PROJECT

RATING: _____
(Overall Performance)
1 Low to 5 High

STUDENT'S NAME _____

Date _____

JOB: Institutional and Commercial Cleaning Aide
DUTY: Care for Furnishings
TASK: Wash Furniture (Metal, Plastic, Glass, Painted)

	EXCELLENT	ABOVE AVERAGE	AVERAGE	POOR	ATTEMPTED - UNABLE TO COMPLETE	OMITTED
1. Prepare detergent solution						
2. Assemble supplies						
3. Wipe surface with solution						
4. Rinse surface						
5. Dry and polish						
6. Use special cleanser when and if needed						

OHIO VOCATIONAL HOME ECONOMICS
COMMUNITY AND HOME SERVICE
SPECIAL PROJECT

RATING: _____
(Overall Performanc
1 Low to 5 Hig

STUDENT'S NAME _____

Date _____

JOB: Home and Institutional Health Aide
DUTY: Lifting, Moving, Transporting
TASK: Make Unoccupied Bed

	EXCELLENT	ABOVE AVERAGE	AVERAGE	POOR	ATTEMPTED - UNABLE TO COMPLETE	OMITTED
1. Assemble bed linen						
2. Adjust bed height, remove soiled linen						
3. Put mattress cover and pad on bed						
4. Place bottom sheet on one side of bed, miter top corner						
5. On opposite side, tuck and pull sheet tight and miter corner of the bottom sheet						
6. Place top sheet, blanket and spread on one side of bed (one item at a time)						
7. Miter lower corner of each						
8. Go to other side, smooth linen and finish mitering lower corners						
9. Form cuff of sheet at head of bed						
10. Put pillow case on pillow and place at head of bed						

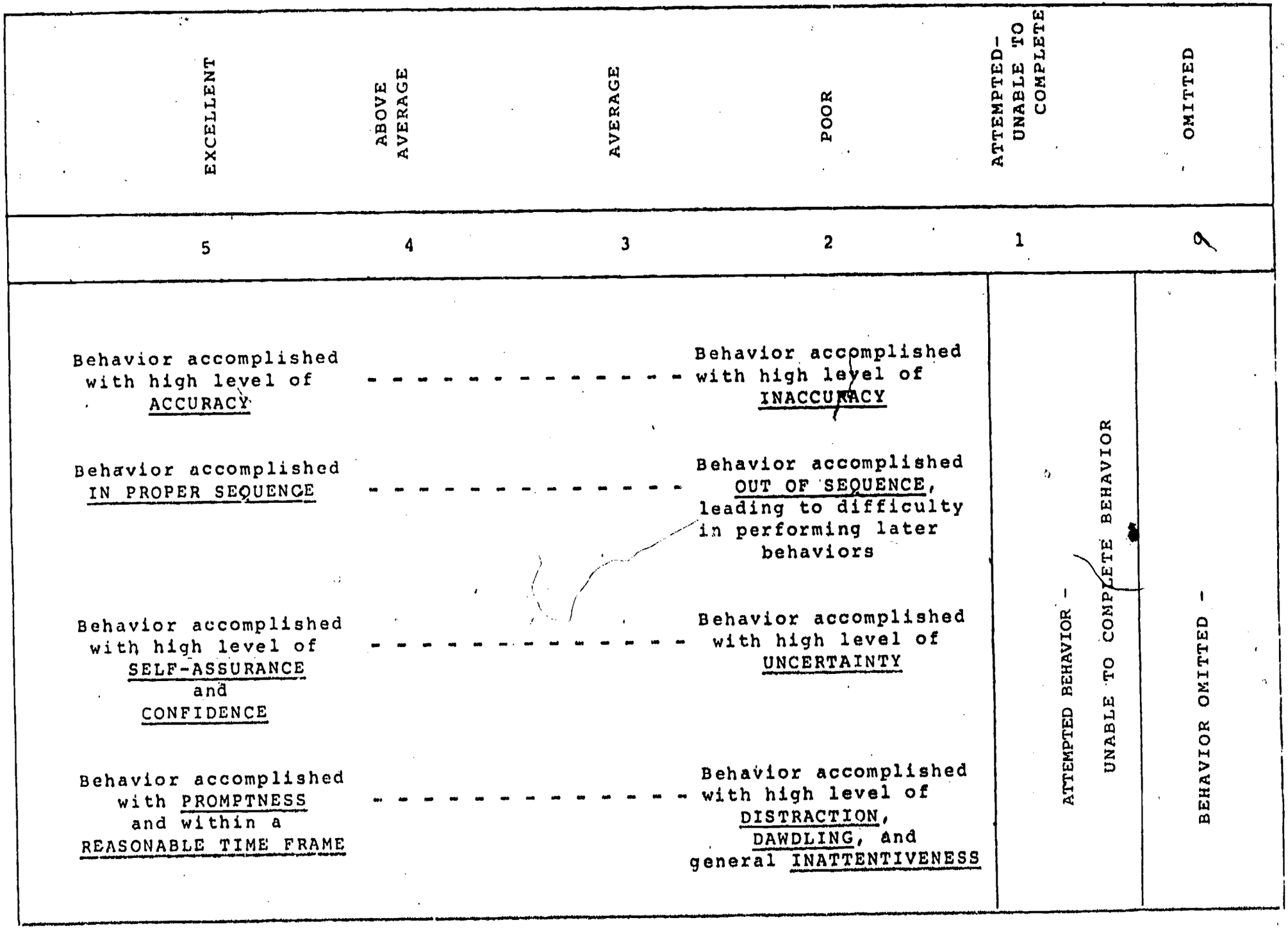


Figure 2. Descriptions of 6 levels of task performance rating.

TEACHER ____________________

JOB: Institutional and Commercial Cleaning Aide

DUTY: Care for Cleaning Equipment

TASKS	Instructional time	NAMES OF STUDENTS													
1. Initially treat dust mop.															
2. Retreat dust mop.															
3. Disinfectant equipment.															
4. Clean wet mop.															
5. Clean bucket and wringer.															
6. Clean wax applicator, soft brush and buffing pads.															
7. Clean vacuum cleaner.															
8. Clean wet-dry vacuum.															
9. Clean single disc floor machine.															
10. Prepare cart for day's work.															
11. Inventory housekeeping supplies and equipment.															
12. Submit supply and material requisition.															

IT'S ABOUT TIME:

A QUESTIONNAIRE FOR STUDENTS

DIRECTIONS: ANSWER THE FOLLOWING QUESTIONS. DRAW A CIRCLE AROUND THE ANSWER YOU CHOOSE.

1. IF YOU HAD A CHOICE, WOULD YOU SPEND

   A. MORE TIME IN THIS CLASS.
   B. LESS TIME IN THIS CLASS
   C. THE SAME AMOUNT OF TIME IN THIS CLASS.

2. IF YOU HAD A CHOICE, WOULD YOU SPEND

   A. MORE TIME IN CLASS DISCUSSIONS AND DEMONSTRATIONS.
   B. LESS TIME IN CLASS DISCUSSIONS AND DEMONSTRATIOS.
   C. THE SAME AMOUNT OF TIME IN CLASS DISCUSSIONS AND DEMONSTRATIONS.

3. IF YOU HAD A CHOICE, WOULD YOU SPEND

   A. MORE TIME IN DOING AND PRACTICING THINGS IN THIS CLASS.
   B. LESS TIME IN DOING AND PRACTICING THINGS IN THIS CLASS.
   C. THE SAME AMOUNT OF TIME DOING AND PRACTICING THINGS IN THIS, CLASS.

4. IF YOU HAD A CHOICE, WOULD YOU LIKE TO

   A. LEARN SOMETHING NEW,
   B. PRACTICE SOMETHING YOU ALREADY KNOW,

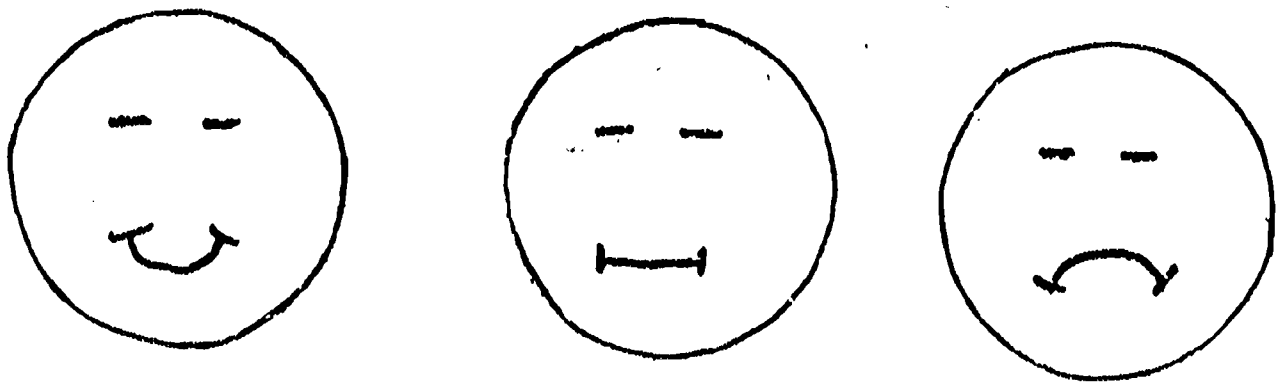
5. IF YOU SPENT MORE TIME IN THIS CLASS, WOULD YOU

   A. LEARN MORE.
   B. LEARN LESS.
   C. LEARN THE SAME AMOUNT.

6. IF YOU SPENT LESS TIME IN THIS CLASS, WOULD YOU

A. LEARN MORE.
B. LEARN LESS.
C. LEARN THE SAME AMOUNT.

DIRECTIONS: ANSWER THE FOLLOWING QUESTION. PLACE AN X UNDER THE DRAWING THAT SHOWS HOW YOU FEEL ABOUT THIS CLASS.



THANK YOU FOR ANSWERING THESE QUESTIONS.

TEACHER INTERVIEWS

1. WHEN LENGTH OF TIME CHANGES, HOW DOES YOUR DAILY PLANNING CHANGE?

2. HOW DO STUDENTS IN LONGER CLASSES GENERALLY SPEND EXTRA TIME AS COMPARED TO STUDENTS IN THE SHORTER CLASSES?

3. WHEN CLASS TIME CHANGES, HOW DOES CONTENT COVERAGE OVER THE THE WHOLE SCHOOL YEAR CHANGE?

4. WHEN LENGTH OF CLASS TIME CHANGES, HOW IS CLASSROOM CLIMATE DIFFERENT?

5. WHAT RECOMMENDATIONS, IF ANY, WOULD YOU MAKE ABOUT THE LENGTH OF CLASS TIME?

Date(s) _____ Observer _____ Class _____

Observation 1 2 3 4 5 School _____ Teacher _____

Identification Codes					Student Time On Task: Content						Student Time On Task: Noncontent				Student Time Off Task						Student Numbers		Notes
Time	Mo	Day	School	Class	Basic Skills (Read, Write, Computat)	Technical Skills/ Theory	Technical Skills/ Practice	Employability Skills	Youth Organization Activities	Other on Task/ Content	Youth Organization Activities	Set Up/ Clean Up	Out of Room (Training, etc.)	Other on Task/ Non-Content	Scheduled/Need: Breaks	Wait; Nothing	Socializing; Mild Conf; Not Others	Goof Off; Warrants Discipline	Restroom; Leave Room	Other Time Off Task	Students Enrolled	Students Present	• Describe what students are actually doing. Be specific; for example, if they are reading, is it a manual to assemble a machine, a textbook, what?
1 :																							
2 :																							
3 :																							
4 :																							
5 :																							
6 :																							
7 :																							
8 :																							
9 :																							
10 :																							
11 :																							
12 :																							
13 :																							
14 :																							
15 :																							
	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	41-42	43-44	45-46	47-48	

62

74

75

Date(s) _____ Observer _____ Class _____

Observation 1 2 3 4 5 School _____ Class _____

- Student Dispersement
  - In one room 1
  - More than one room 2
  - Away from school (e.g., field trip) 3
  - Other 4
- Student Grouping for Work
  - All on same project 1
  - Small groups/individuals on various projects 2
  - Other 3
- Teacher Role
  - Observing all/interacting with all students in class 1
  - Observing and interacting with group/individual 2
  - Observing activity but not interacting (monitoring) 3
  - In room/office but not observing or interacting 4
  - Not in room at all 5
  - Not applicable 6

Identification Codes					Class				Teacher		
Time	Mo	Dav	School	Class	Dispersement	Grouping	Disruptions (Internal)	Disruptions (External)	Role	Method (Primary Mode)	With-it-ness
1 2	3 4	5 6	7 8	9	10 11	12	13	14	15	16	17	18	19

- Describe what teacher is actually doing. Be specific, for example if she/he is demonstrating, is it how to sew a seam, the correct way to insert paper in a typewriter, what?

- Teacher Method
  - One-to-one instruction 01
  - Question/answer/discussion 02
  - Discipline students 03
  - Management tasks (roll, etc.) 04
  - Lecture 05
  - Make announcements 06
  - Give directions/instructions 07
  - Demonstrates/explain 08
  - Use audio-visuals 09
  - Test/quiz 10
  - Observe students working 11
  - Work on own (paperwork, etc.) 12
  - Socialize 13
  - Pass out materials 14
  - Help clean up, set up 15
  - Not in room 16
  - Not applicable 17
  - Other 18
- Teacher With-it-ness
  - Sensitive to all-sensitive at many levels 1
  - Sensitive to most needs 2
  - Some; variable sensitivity to needs 3
  - Not sensitive to most students 4
  - Not sensitive at all 5
  - Not applicable 6

Cleveland Public Schools
Form II/1984

APPENDIX C

Data

Table 1-C

Achievement Mean Percentage Scores for
Pre and Post Test

	SCHOOL A			SCHOOL B		SCHOOL C
	TEACHER 1		TEACHER 2	TEACHER 3		TEACHER 4
Test Section	Group 1 H/E	Group 2 H/E	Group 3 H/C	Group 4 H/E	Group 5 H/C	Group 6 H/C
1. Pre	38.0	42.9	48.8	30.0		36.9
Post	45.0	41.7	55.0			56.9
2. Pre	35.0	39.3	45.8	24.1		39.4
Post	38.6	35.7	54.3			54.9
3. Pre	32.2	37.1	42.3	22.9	30.3	36.0
Post	29.9	31.4	43.1			51.9
4. Pre	31.9	30.7	35.7	31.1	26.9	35.9
Post	31.6	26.4	38.7			44.2
5. Pre	32.2	33.3	41.2	31.2	31.9	43.7
Post	29.9	37.9	40.5			46.1
6. Pre	36.9	36.2	26.5	31.3	29.5	44.2
Post	32.3	36.5	28.1			45.6
7. Pre	31.8	30.5	23.6	31.1	33.9	42.1
Post	26.6	22.9	33.3			49.3
8. Pre	39.6	43.6	38.9	30.7	34.7	40.5
Post	34.3	31.3	39.5			54.3
9. Pre	22.2	36.8	33.0	33.8	30.8	42.5
Post	31.5	40.0	35.8			43.9
10. Pre	31.2	32.1	35.7	27.8	33.6	40.8
Post	31.0	37.0	35.1			44.6
11. Pre	24.0	38.6	37.9	31.6	41.6	43.1
Post	51.6	26.3	40.6			56.5
12. Pre	22.2	32.2	29.2	22.9	32.3	42.9
Post	30.6	22.0	33.6			49.7
13. Pre	29.6	31.6	35.4	25.2	29.7	42.9
Post	33.3	22.6	40.6			51.5
14. Pre	23.7	30.9	39.3	37.0	37.9	44.4
Post	44.5	25.5	34.4			46.2
15. Pre	28.2	30.1	32.4	29.4	22.3	39.6
Post	32.4	26.8	40.7			48.8
TOTAL Pre	31.5	31.7	34.4	30.4	31.3	40.7
Post	34.6	30.1	40.5	32.9	45.6	51.6
N*	10	12	13	10	11	16
	6	10	10	8	9	16

* N=number of scores for total column

Table 2-C

Achievement Mean Percentage Scores for Pre and Post Test

	Control Class Non-Handicapped (6)	Combined Experimental Class (1,2,4)	Combined Control Class (3,5)
1. Pre	36.9	37.8	48.8
Post	56.9	43.2	55.0
2. Pre	39.4	33.8	45.8
Post	54.9	37.0	54.3
3. Pre	36.0	31.7	36.9
Post	51.9	30.7	43.1
4. Pre	35.9	31.2	32.0
Post	44.2	28.7	38.7
5. Pre	43.7	32.4	37.2
Post	46.1	34.3	40.5
6. Pre	44.2	35.1	33.4
Post	45.6	34.6	38.1
7. Pre	42.1	31.1	28.1
Post	49.3	24.3	33.3
8. Pre	40.5	38.6	37.1
Post	54.3	32.3	39.5
9. Pre	42.5	31.5	32.0
Post	43.9	31.8	35.8
10. Pre	40.8	30.5	34.8
Post	44.6	35.0	35.1
11. Pre	43.1	32.1	39.5
Post	56.5	34.7	40.5
12. Pre	42.9	26.4	30.7
Post	49.7	24.9	38.6
13. Pre	42.9	29.1	32.8
Post	51.5	26.2	40.6
14. Pre	44.4	30.6	38.7
Post	46.2	31.8	34.4
15. Pre	39.6	29.3	27.8
Post	48.8	28.6	40.7
TOTAL Pre	40.7	31.2	33.0
Post	51.6	32.2	42.9
*N Pre	16	32	24
Post	16	24	19

* - N=number of scores for total column

Teacher Satisfaction with Time Allocation

Research Question 4: What is the relationship between time allocation and teacher satisfaction?

Teacher interview schedules (see Appendix B) were implemented with experimental and control group teachers in May. The teacher in the regular classroom was not interviewed. A summary statement of teacher responses for each interview item follows. The reader will note that items were designed to be exploratory and open-ended. Information provided by teachers, though generally related to time issues, was not always directly related to time allocation as defined in this study.

Interview Question 1: The length of time students spend in class is only one thing that might make a difference in how much students learn. What else seems to be important for your students?

Teachers suggested that motivation, interest, reading level, and amount of prior knowledge/experience in the area of study are related to how much students can learn. Field experiences in real settings were stressed as critical by two teachers. One teacher, who instructed in both experimental and control groups, suggested a possible interaction between level of functioning in the "related" class, in the field settings, and length of time:

> In the classroom setting, higher functioning handicapped students can tolerate longer periods of engaged time than lower functioning students ....in the field, longer periods of time are tolerable, even for lower functioning students.

Interview question 2: When length of class time changes, how, if at all, does your daily planning change?

Teacher responses to this question varied. One teacher, whose students comprised experimental groups only (time = 135 min.), viewed an increase in allocated time as a demanding challenge. This teacher felt that methods to insure maintenance of student motivation would be essential. The teacher who had worked with a control group (time = 180 min.) suggested that if time were shortened, the amount of "related" time would need to be cut from 2 out of 4 periods to 1 out of 4 periods per day. A third teacher, who instructed in both experimental and control groups, suggested that other factors are more critical than time allocation. She suggested that late arriving buses, time of day, and point in the school year greatly influenced her program, as in the following:

> Time of day /AM vs. PM/ is really important when you want to develop quality work sites/placements. At motel and hospital field placements the important work is done in the morning and students in an AM program experience quality work time. In the afternoon, employees that the students work with have most of their work done and are preparing for afternoon shift changes. The quality of the work time for PM students is therefore not as great.

And in regard to point in the school year:

> Student skill level at different times of the year affects planning. Students get faster and more efficient as they gain skills. For instance, now /May/ many students work at a "job rate" of 32 minutes when they clean the bathroom. In October this job takes students up to a full hour.

Interview question 3: How do students in the longer class generally spend extra time as compared to students in the shorter class?

Teachers (apparently) had difficulty in responding to this question. This may have been due to inabilities in comparing longer vs. shorter time allocation when the teacher had had personal experience with only one of the alternatives. One teacher suggested that with longer time, students would be able to learn at a higher level of proficiency. The teacher who did have personal experience with both lengths of time allocation stated that the shorter class always seemed to be lagging behind the longer classes, although the shorter class (PM) had less lost time due to bus delays.

Interview Question 4: How does content coverage - over the whole school year - change when class time changes?

Teachers, in general, concurred in their responses to this item. They stated, some with emphasis, that all skills are taught in all classes, regardless of time allocation. One suggested that time makes little difference in learning since "students take in only so much and then they "tune you out". She suggested that regardless of content coverage, learning would remain the same.

Interview Question 5: How, if at all, is classroom climate different when length of class time is different?

Teachers again concurred on the relationship between time allocation and classroom climate, as expressed in the following:

> Students would be happy to have shorter periods of time. A four period block is a long time to spend in one place.
>
> Climate does change when time changes. In a longer class, students get bored, restless, and "snappy".... Students also need more diversions in their school day -- more different experiences.

Interview Question 6: What recommendations, if any, would you make about the length of class time?

Teachers stated that, if given a choice, they would prefer the shorter length of class time (time = 135 min.) over the longer alternative (time = 180 min.). One teacher suggested that decreasing allocated time might result in improved school attendance.

Student Satisfaction: The Basic Questionnaire

Item 1: Preference for more, less, or the same amount of time in the class.

The majority of students in both experimental and control groups indicated a preference for less time in the class. Remaining students in both treatment groups were fairly evenly divided between spending more time and spending the same amount of time in the class.

Item 2: Preference for more, less, or the same amount of time in class discussions and demonstrations.

Student responses on this more particular item were fairly evenly distributed across response choices, as indicated in Table 16.

Item 3: Preference for more, less, or the same amount of time in "doing" and practicing things.

Slightly more students in both the experimental and control groups indicated preference to spend more time "doing" and practicing than to spend less time or the same amount of time "doing" and practicing. Considering items 2 and 3 inconjunction, it can be concluded that slightly more students are willing to spend more time "doing" than they are to spend more time "discussing".

Item 4: Preference for learning something new vs. practicing something already known.

Students in all groups, as might have been expected, indicated a preference for learning something new as opposed to practicing something already known. In comparision with responses on the two immediately preceding items, we might draw conclusions about attitudes held by these students. First, although they prefer learning something new over practicing something already known, they are somewhat more willing to designate increased time for practicing as compared to discussion and demonstration. It may be that they wish to learn new things

as they practice them, e.g. through trial and error rather than through viewing a demonstration and then performing.

Item 5: Attitude about consequesnces of spending more time in class.

As indicated in Table 16, students in experimental and control groups responded differently on this item. In the experimental groups (time = 135 min.), students were nearly evenly divided between consequences of learning more and learning the same amount. In contrast, the control group students (time = 180 min.), overwhelmingly expressed an attitude that more time would result in more learning. It must be noted that since the two groups had different teachers, the differences may be related to factors other than existing allocated time differences. Furthermore, all students had experience with only one measure of allocated time and could not have provided comparative judgements based on their experiences.

Item 6: Attitude about consequences of spending less time in class.

This item presented a contrast, or opposite problem as compared to that in the immediately preceding item. As indicated in Table 16, student responses were mixed. Students in the experimental group showed a slight preference for the attitude that less time in class would yield less learning. The experimental group, of course, experienced less time in class than the control group. Students may have been reflecting on factors other than the comparison with their control group cohorts while responding to these questionnaire items.

Item 7: Overall attitude.

Opinions expressed through the "smiley face" item were more often favorable than unfavorable. Data are presented in Table 16. As

indicated earlier, analysis of variance between groups in regard to overall attitude indicated that differences in opinion were not statistically significant.

Student Satisfaction: The Adapted Questionnaire

Item 1: Preference for longer, shorter, or the same break time (Break time = 15 minutes).

The majority of control group students (time = 180 min.) expressed a preference for longer break time. In contrast, the experimental group expressed a slight preference for the same length in their break time. Summary data on this item and all remaining items are arrayed in Table 17.

Item 2: Preference for longer, shorter, or the same time before break (e.g. "related" time).

Student responses on this item were mixed among the three response choices for both experimental and control groups, although "the same" took the simple majority.

Item 3: Preference for longer, shorter, or the same time after break (e.g. "lab" or practice time).

Again, a simple majority indicated preference for keeping time allocations the same within the existing time frames.

Item 4: Preference for more, less, or the same time in school.

Students in both experimental and control groups more often than not indicated preference for spending the same amount of time in school.

Item 5: Preference for more, less, or the same time at job sites.

Students in this setting, who routinely spend two days each week at job sites away from the school setting, expressed mixed opinions about any preferences for change in routine. Opinions were nearly evenly divided among the three response choices for both the experimental and the control group.

Item 6: Preference for learning something new vs. practicing something already known.

A clear majority of students in both experimental and control groups indicated preference for learning something new. Results on this item can be directly compared with the similar item on the basic questionnaire; findings in both schools are highly similar.

Item 7: Attitude about consequences of spending more time in class.

As indicated in Table 17, students expressed mixed opinions about more time in school. A majority in the control group (180 min.) did select the response of proportional consequence, e.g. more time yields more learning.

Item 8: Overall attitude.

Opinions expressed through this "smiley face" item revealed a majority of opinions in the favorable category for both experimental and control groups.